REMARKS

Claims 1 and 4-18 are pending in the present patent application. Claims 1, 4-6, 10-15, and 18 stand rejected; and claims 7-9, 16, and 17 stand objected to. This application continues to include claims 1 and 4-18.

Claims 1, 6, 11, 14, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kosaka, et al., U.S. Patent No. 6,283,577 B1 (hereinafter, Kosaka), in view of Kanemura, U.S. Patent No. 6,974,201 B2 (hereinafter, Kanemura). Applicants respectfully request reconsideration of the rejection of claims 1, 6, 11, 14, and 15 in view of the following.

Kosaka is directed to a method of flushing a recording head of an ink jet recording apparatus which make it possible to carry out flushing without suspending a printing process (col. 1, lines 42-45). Kosaka discloses a printing region, and that ink droplets are ejected in auxiliary regions outside the printing region, toward an ink absorber 8 (col. 6, lines 5-8, Fig. 6). Although flushing is carried out when the carriage 4 is moving in the auxiliary regions, flushing may also be carried out while the carriage is accelerated or decelerated in the respective acceleration/deceleration regions (col. 6, lines 20-24, Fig. 6).

Kanemura is directed to drive control of an inkjet printing apparatus having plural full-line type inkjet printheads each having printing elements corresponding to the width of a print medium (col. 1, lines 17-20). Kanemura discloses that a preliminary discharge to discharge ink from the orifices of the respective printing elements is periodically performed to maintain the printing elements (col. 1, lines 62-66). A determination circuit 26 in a gate array 24 is used to determine whether or not a printing duty exceeds a threshold value (col. 5, lines 9-12). Fig. 6A illustrates the operation of determination circuit 26, and depicts the order (time flow) of the processing in the determination circuit 26 (col. 5, lines 45-49). In Fig. 6A, D1 denotes print data for the first

page supplied to the black printhead 31, D2 is the print data for the second page, and Y1*d* is preliminary discharge data (col. 5, lines 61-66).

Applicants believe that claims 1, 6, 11, 14, and 15 patentably define Applicants' invention over Kosaka in view of Kanemura, for at least the reasons set forth below.

Claim 1 is directed to a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier that carries an ink jet printhead, said ink jet printer having a waste ink receptacle. Claim 1 recites, among other things, said maintenance data being appended to said print data for a particular printing swath pass for serialization to said printhead.

The Examiner acknowledges that Kosaka does not disclose, teach, or suggest maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead, as recited in claim 1. Rather, the Examiner relies on Kanemura as assertedly teaching the maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead, relying on Kanemura Fig. 6A.

In contrast to maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead, as recited in claim 1, Kanemura discloses that maintenance data is provided after the print data for each page.

Kanemura discloses inkjet printing apparatus having plural full-line type inkjet printheads, each having printing elements corresponding to the width of a print medium (col. 1, lines 17-20), and hence, does not employ or otherwise disclose, teach, or suggest a printing swath pass within the context of Applicants' claimed invention. Since maintenance data for a page clearly does not disclose, teach, or suggest maintenance data being appended to the print data for a particular printing swath pass, it is clear that Kanemura does not disclose, teach, or suggest the aforementioned subject matter of claim 1.

In addition, Kanemura does not disclose, teach, or suggest any maintenance data <u>being</u> <u>appended to print data</u>, but rather, merely illustrates that maintenance data is applied to the printhead after the print data is applied is applied to the printhead (Fig. 6). Simply applying maintenance data to a printhead after applying print data, as disclosed by Kanemura, does not, in of itself, disclose, teach, or suggest that the maintenance data itself is appended to the print data for serialization, but rather, merely indicates the sequence of operations of the Kanemura apparatus, with providing any detail as to the data stream as might indicate serialization, much less that the maintenance data was appended to the print data for serialization to the printhead, as recited in claim 1.

Accordingly, Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest the maintenance data being appended to the print data for a particular printing swath pass for serialization to the printhead.

Claim 1 also recites, in part, wherein a timing segment is interposed between the print data and the maintenance data.

The Examiner acknowledges that Kosaka does not disclose, teach, or suggest wherein a timing segment is interposed between the print data and the maintenance data, as recited in claim 1. Rather, the Examiner relies on Kanemura as assertedly teaching that a timing segment is interposed between the print data and the maintenance data, relying on Kanemura Fig. 6A.

However, as set forth above, the print data depicted in Fig. 6A is print data for <u>an entire</u> <u>page</u>, not for a particular <u>printing swath pass</u>. Since, as set forth above, Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest maintenance data being appended to print data for a particular printing swath pass, it clearly follows that a timing segment is not interposed therebetween. That is, there is no maintenance data appended to print data for a particular printing swath between which a timing segment may be interposed.

Accordingly, Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest wherein a timing segment is interposed between the print data and the maintenance data.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 1, and that the combination of Kosaka and Kanemura would not yield Applicants' invention of claim 1. Claim 1 is thus believed allowable in its present form.

Claim 6 is believed allowable due to its dependence on otherwise allowable base claim 1.

Claim 11 is directed to a method of performing printhead maintenance firing in an ink jet printer that has a printhead carrier that carries an ink jet printhead, said ink jet printer having a waste ink receptacle. Claim 11 recites, in part, appending said timing segment and said maintenance segment to said print data segments; serializing said print data segments, said timing segment, and said maintenance segment to said printhead.

Applicants respectfully submit that Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest appending the timing segment and the maintenance segment to the print data segments; and serializing the print data segments, the timing segment, and the maintenance segment to the printhead, as recited in claim 11, for substantially the same reasons as set forth above with respect to claim 1.

Accordingly, claim 11 is believed allowable in its present form.

Claims 14 and 15 are believed allowable due to their dependence on otherwise allowable base claim 11. In addition, claims 14 and 15 further and patentably define the invention.

For example, claim 14 is directed to the method of claim 11, the print data segments and the timing segment being serialized to the printhead when the printhead carrier is moving at the first velocity.

Kanemura does not disclose, teach, or suggest the print data segments and the timing segment being serialized to the printhead when the printhead carrier is moving at the first velocity, nor does the Examiner assert as much. Rather, the Examiner relies upon Kosaka Fig. 6 and column 6, lines 20-24, and asserts that "flushing occurs during deceleration, requiring that the data had been previously serialized," and that Fig. 6 "shows that the previous time was during travel at the first velocity."

However, assuming arguendo that the Kosaka flushing occurs during deceleration, such statement does not, in of itself, yield sufficient information to conclude that print data segments and a timing segment were serialized to the printhead when the printhead carrier is moving at the first velocity. For example, the asserted Kosaka data may be applied prior to the start of the print pass, during acceleration, or during an initial portion of the deceleration, since it is during deceleration that the asserted flushing takes place.

However, Kosaka does not disclose, teach, or suggest when the asserted data is applied, much less that print data segments and a timing segment were serialized to the printhead when the printhead carrier is moving at the first velocity.

Accordingly, claim 14 is believed allowable in its own right.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claims 1, 6, 11, 14, and 15, and that the combination of Kosaka and Kanemura would not yield Applicants' invention of claims 1, 6, 11, 14, and 15.

Applicants thus respectfully request that the rejection of claims 1, 6, 11, 14, and 15 under 35 U.S.C. 103(a) be withdrawn.

Claims 4, 5, 12, and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kosaka in view of Kanemura, and in further view of Enoto, U.S. Patent No. 4,453,166

(hereinafter, Enoto). Applicants respectfully request reconsideration of the rejection of claims 4, 5, 12, and 13 in view of the following.

Enoto is directed to avoiding defective elements in a thermal printer, wherein printing is allowed to continue without any trouble even when some of the heating elements of a thermal printer become defective (col. 1, lines 7-10). Enoto discloses an output register associated with the bits in the heating elements and adapted to deliver printing data for one line to the heating elements, wherein when some of the heating elements become defective, the printing data is shifted a suitable number in either direction so as to correspond to the non-printing bits in the printing data and is then transferred to the output register (col. 1, lines 50-57). Thereby, even if some of the heating elements become defective, the printing operation can be continued in normal condition (col. 1, lines 57-59).

Fig. 2B shows the printing data read into an output register, and Fig. 2C shows the printing data shifted to the left and read into the output register (col. 2, lines 3-6).

Enoto also discloses that to data transferred from this output register to defective heating elements there always correspond white bars, making it possible to continue the printing operation without having to replace the thermal head or thermal printer in its entirety (col. 2, lines 47-52).

Applicants believe that claims 4, 5, 12, and 13 patentably define Applicants' invention over Kosaka in view of Kanemura, and in further view of Enoto, taken alone or in combination, for at least the reasons set forth below.

Claim 4 is directed to the method of claim 1, further comprising the step of calculating the data length of said timing segment based on a length of said print data.

Claim 4 is believed allowable due to its dependence on otherwise allowable base claim 1. For example, as set forth above with respect to claim 1, Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 1. Enoto does not

make up for the deficiency of Kosaka and Kanemura as applied to claim 1, nor does the Examiner assert as much. Rather, the Examiner relies on Enoto as assertedly disclosing the subject matter recited in claim 4.

In addition, Kosaka and Kanemura do not disclose, teach, or suggest the subject matter of claim 4, nor does the Examiner assert as much. Rather, the Examiner relies on Enoto for the asserted teaching of calculating the data length of the timing segment based on a length of the print data.

Applicants respectfully submit that Enoto does not disclose, teach, or suggest a timing segment within the context of Applicants' claimed invention, much less calculating the data length of the timing segment based on a length of the print data. However, the Examiner relies on Enoto at column 3, lines 37-45 and Fig. 2B as assertedly disclosing a timing segment purposefully appended to the print data for output to the heaters, and assertedly was thus calculated.

In contrast to calculating the data length of the timing segment based on a length of the print data, the relied upon Enoto passage and Fig. 2B pertain to print data, and do not even purport to disclose, teach, or suggest timing data.

For example, Enoto clearly discloses that "FIG. 2-B shows the printing data read into an output register." (Col. 2, lines 3-4, emphasis added). Enoto discloses that the output register is associated with the bits in the heating elements and adapted to deliver printing data for one line to the heating elements (col. 1, lines 50-53), and thus, is unrelated to timing segments within the context of Applicants' claimed invention.

Also, Enoto at column 2, lines 13-52 make clear that the data consisting of ones and zeros pertains to which heating elements will be used, and has no bearing on a time sequence, much less timing segments within the context of Applicants' claimed invention.

Accordingly, Kosaka, Kanemura, and Enoto, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 4, and the combination of Kosaka, Kanemura, and Enoto would not yield the invention of claim 4.

Claim 4 is thus believed allowable in its own right.

Claim 5 is directed to the method of claim 1, wherein said timing segment is composed of zeros data.

Claim 5 is believed allowable due to its dependence on otherwise allowable base claim 1 for substantially the same reasons as set forth above with respect to claim 4.

In addition, for substantially the same reasons as set forth above with respect to claim 4, Enoto does not disclose, teach, or suggest a timing segment within the context of Applicants' claimed invention.

Claim 5 is thus believed allowable in its own right.

Claim 12 is directed to the method of claim 11, said timing segment being generated by the step of calculating a data length of said timing segment based on a length of said print data segments.

Claim 12 is believed allowable due to its dependence on otherwise allowable base claim 1 for substantially the same reasons as set forth above with respect to claim 4.

In addition, claim 12 is believed to be allowable in its own right for substantially the same reasons as set forth above with respect to claim 4.

Claim 13 is directed to the method of claim 11, wherein said timing segment is composed of zeros data.

Claim 13 is believed allowable due to its dependence on otherwise allowable base claim 1 for substantially the same reasons as set forth above with respect to claim 4.

In addition, for substantially the same reasons as set forth above with respect to claim 4, Enoto does not disclose, teach, or suggest a timing segment within the context of Applicants' claimed invention.

Claim 13 is thus believed allowable in its own right.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka, Kanemura, and Enoto, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claims 4, 5, 12, and 13, and the combination of Kosaka, Kanemura, and Enoto would not yield Applicants' invention of claims 4, 5, 12, and 13.

Applicants thus respectfully request that the rejection of claims 4, 5, 12, and 13 under 35 U.S.C. 103(a) be withdrawn.

Claims 10 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kosaka in view of Kanemura, and in further view of Drogo, et al., U.S. Patent No. 5,528,269 (hereinafter, Drogo). Applicants respectfully request reconsideration of the rejection of claims 10 and 18 in view of the following.

Drogo is directed to a servicing scheme for eliminating uneven print quality of new and/or newly-installed ink pens at start-up (col. 1, lines 10-11). Drogo discloses that upon detecting that a new cartridge 16 is installed (e.g., the identification of the newly installed pen is different from the stored identification), the controller 18 moves the cartridge holder 14 to a position where a spittoon 26 is located (col. 5, lines 12-15). When the cartridge holder 14 reaches the spittoon 26, the controller 18 then fires the nozzles 25 a predetermined number of times to eject the unpigmented liquid which may have occupied the nozzle chamber (col. 5, lines 15-19).

Applicants believe that claims 10 and 18 patentably define Applicants' invention over Kosaka in view of Kanemura, and in further view of Drogo, taken alone or in combination, for at least the reasons set forth below.

Claim 10 is directed to the method of claim 1, said waste ink receptacle being positioned at a predetermined location outside a print zone of said ink jet printer, and positioned in relation to an edge of a sheet of print media.

Claim 10 is believed allowable due to its dependence on otherwise allowable base claim 1. For example, as set forth above with respect to claim 1, Kosaka and Kanemura, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 1. Drogo does not make up for the deficiency of Kosaka and Kanemura as applied to claim 1, nor does the Examiner assert as much. Rather, the Examiner relies on Drogo as assertedly disclosing the subject matter recited in claim 10.

In addition, Kosaka and Kanemura do not disclose, teach, or suggest the subject matter of claim 10, nor does the Examiner assert as much. Rather, the Examiner relies on Drogo for the asserted teaching of the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media.

Applicants respectfully submit that Drogo does not disclose, teach, or suggest the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media, as recited in claim 10. However, the Examiner asserts that Drogo does so, relying on Drogo Fig. 2 and element 26.

In contrast to the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media, as recited in claim 10, Drogo merely depicts a print axis 12, a spittoon 26, and a service position 28 in Fig. 2.

However, in no way does Drogo indicate or otherwise disclose, teach, or suggest that spittoon 26 is positioned in relation to an edge of a sheet of print media, as recited in claim 10. For example, Drogo Fig. 2 does not even depict a sheet of print media, much less disclose, teach,

or suggest some dimension or other indication that spittoon 26 is positioned in relation to such a sheet of print media.

In addition, proportions of features in drawings are not evidence of actual proportions when the drawings are not to scale, and accordingly, since Drogo Fig. 2 is not indicated as being to scale, the positional relationship between spittoon 26 and an asserted sheet of print media is not disclosed, taught, or suggested by Drogo Fig. 2.

Further, the balance of the Drogo disclosure does not indicate anything as would disclose, teach, or suggest the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and underlined positioned in relation to an edge of a sheet of print media.

For example, the only other Drogo passages that mention spittoon 26 simply indicate that upon detecting that a new cartridge 16 is installed (e.g., the identification of the newly installed pen is different from the stored identification), the controller 18 moves the cartridge holder 14 to a position where a spittoon 26 is located (col. 5, lines 12-15), and that when the cartridge holder 14 reaches the spittoon 26, the controller 18 then fires the nozzles 25 a predetermined number of times to eject the unpigmented liquid which may have occupied the nozzle chamber (col. 5, lines 15-19).

However, these passages clearly do not provide any information as might disclose, teach, or suggest the waste ink receptacle being positioned in relation to an edge of a sheet of print media.

Accordingly, Kosaka, Kanemura, and Drogo, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claim 10, and claim 10 is thus believed allowable in its own right.

Claim 18 is directed to the method of claim 11, said waste ink receptacle being positioned at a predetermined location outside a print zone of said ink jet printer, and positioned in relation to an edge of a sheet of print media.

Claim 18 is believed allowable due to its dependence on otherwise allowable base claim 11 for substantially the same reasons as set forth above with respect to claim 10.

In addition, for substantially the same reasons as set forth above with respect to claim 10, Drogo does not disclose, teach, or suggest the waste ink receptacle being positioned at a predetermined location outside a print zone of the ink jet printer, and positioned in relation to an edge of a sheet of print media.

Claim 18 is thus believed allowable in its own right.

Accordingly, for at least the reasons set forth above, Applicants respectfully submit that Kosaka, Kanemura, and Drogo, taken alone or in combination, do not disclose, teach, or suggest the subject matter of claims 10 and 18, and that the combination of Kosaka, Kanemura, and Drogo would not yield Applicants' invention of claims 10 and 18.

Applicants thus respectfully request that the rejection of claims 10 and 18 under 35 U.S.C. 103(a) be withdrawn.

For the foregoing reasons, Applicants submit that no combination of the cited references teaches, discloses or suggests the subject matter of the appended claims. The appended claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorize that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (317) 894-0801.

Respectfully submitted,

Paul C. Gosnell

Paul C. Gosnell
Registration No. 46,735

Attorney for Applicant

RKA14/ts

TAYLOR & AUST, P.C.
12029 E. Washington Street
Indianapolis, IN 46229
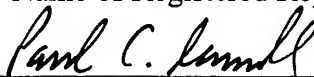Telephone: 317-894-0801
Facsimile: 317-894-0803

Enc.: Return postcard

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on: June 8, 2006.

Paul C. Gosnell, Reg. No. 46,735
Name of Registered Representative

Paul C. Gosnell
Signature

June 8, 2006
Date